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A contribution to the revision of the genus *Rhamnusium* Latreille, 1829 (Coleoptera: Cerambycidae)

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Abstract. In Europe, Caucasus and Near East the genus *Rhamnusium* Latreille, 1829 is represented by a single species *Rhamnusium bicolor* (Schrank, 1781) with 9 subspecies (two subspecies are described as new): *Rh. b. bicolor* (Schrank, 1781) - West Europe, *Rh. b. constans* ssp. nov. - East Europe, *Rh. b. demaggii* Tippman, 1956 - Italy: Lazio, Abruzzo, *Rh. b. italicum* Müller, 1966 - Italy: Basilicata and Calabria, *Rh. b. graecum* Schaufuss, 1862 - South Balkans, *Rh. b. testaceipenne* Pic, 1897 - West Caucasus, West Transcaucasia, north-east Turkey, *Rh. b. lenkoranum* ssp. nov. - South Armenia, Azerbaidzhan and North Iran, *Rh. b. juglandis* Fairmaire, 1866 - most parts of Turkey, *Rh. b. praeustum* Reitter, 1895 - South-east Turkey and Syria.

INTRODUCTION

The generally accepted (Löbl & Smetana, 2010) system of *Rhamnusium* is totally unnatural. The populations without any relative connections from marginal regions of the genus area were attributed to certain local subspecies: “*graecum graecum*” from Greece and from Azerbajdzhan or “*bicolor bicolor*” from France and from Urals in Russia.

Quite a natural position was formulated by Sama (2002): “All these taxa could be only geographic variations of one species”, but it was not accepted in any publication up to now.

In the article presented here, all the forms from Iberian Peninsula to Iran and from North Europe to Syria are attributed to *Rhamnusium bicolor* (Schrank, 1781). Two subspecies are described as new.

Only African *Rhamnusium algericum* Pic, 1896 could be accepted as the second species of the genus.

Chinese species were transferred into another genus: *Neorhamnusium* Hayashi, 1976.

MATERIAL AND METHODS

Abbreviations of collections:

AN private collection of A. Napolov, Riga, Latvia;
AS private collection of A. Shamaev, Moscow, Russia;
BMNH collection of British Natural History Museum, London, England;
PK private collection of P. Kabátek, Prague, Czech Republic;

SM private collection of S. Murzin, Moscow, Russia;
 TP private collection of T. Peterka, Veselí nad Lužnicí, Czech Republic;
 MD author's collection, Moscow, Russia;
 MR private collection of M. Rejzek, London, England;
 ZIN collection of Zoological Institute, Sankt-Petersburg, Russia;
 ZMM collection of Zoological Museum of Moscow University, Moscow, Russia.

RESULTS

Rhamnusium bicolor (Schrank, 1781) consists of 9 subspecies:

1. *Rh. bicolor bicolor* (Schrank, 1781) - West Europe
2. *Rh. bicolor constans* ssp. nov. - East Europe
3. *Rh. bicolor demaggii* Tippman, 1956 - Italy: Lazio and Abruzzo
4. *Rh. bicolor italicum* Müller, 1966 - Italy: Basilicata, Calabria
5. *Rh. bicolor graecum* Schaufuss, 1862 - South Balkans
6. *Rh. bicolor testaceipenne* Pic, 1897 - West Caucasus and West Transcaucasia, north-east Turkey
7. *Rh. bicolor lenkoranum* ssp. nov. - South Armenia, Azerbaidzhan, North Iran
8. *Rh. bicolor juglandis* Fairmaire, 1866 - Turkey
9. *Rh. bicolor praeustum* Reitter, 1895 - South-east Turkey, Syria

***Rhamnusium bicolor* (Schrank, 1781)**

Cerambyx virgo Voet, 1778: 13 [unavailable name - ICZN, Art. 11.4] - "In India Occidentali".
Cerambyx bicolor Schrank, 1781: 132 - „Habitat Viennae“.

Type locality. Austria, Vienna environs - according to the original description.

Distribution. About whole Europe, from North Pyrenees to Urals, including Asian part of Orenburg Region and North-West Kazakhstan along Ural-river valley; Caucasus with Transcaucasia; North Iran, whole Anatolia, Syria.

***Rhamnusium bicolor bicolor* (Schrank, 1781)** (Figs 1-6)

Cerambyx virgo Voet, 1778: 13 [unavailable name - ICZN, Art. 11.4] - "In India Occidentali".
Cerambyx bicolor Schrank, 1781: 132 - „Habitat Viennae“.
Cerambyx glaucopterus Schaller, 1783: 284 - „Germania“.
Rhagium schrankii Laicharting, 1784: 118 - Tirol.
Stenocorus ruficollis Herbst, 1784: 92 - no locality.
Cerambyx rubroviolaceus Geoffroy, 1785: 86 - "in Agro Parisiensi".
Callidium salicis Fabricius, 1787: 154 "in Lipsia salicibus" (Germany).
Rhagium etruscum Rossi, 1790: 149 - „Florentiae“.
Rhamnusium bicolor var. *ambustum* Heyden, 1877: 394 - „Nassau und Frankfurt“, „Drei Linden“ bei Soden" - unavailable name.
Rhamnusium gracilicorne Théry, 1895: cclxv - „Autriche“; Bedel, 1897: 43; Aurivillius, 1912: 167, part. - "Deutschland, Frankreich, Griechenland"; Winkler, 1929: 1147, part. - "E.c."; Plavilstshikov, 1936: 150, 506,

part. - "Mitteleuropa; Ukraine, Süden der UdSSR"; 1955: 498, part. - steppe and forest-steppe of European USSR, West Europe; Villiers, 1978: 91, part. - "Allemagne, Europe centrale et méridionale, Ukraine, Sud de l'U.R.S.S"; Tsherepanov, 1979: 85, part. - western and eastern Europe, eastwards South Urals; Lobanov et al., 1981: 795, part. - European part of USSR, West Europe; Pesarini & Sabbadini, 1994: 15, 70 - "Europa centrale"; Angelov, 1995: 54 - Middle and South Europe; Althoff & Danilevsky, 1997: 9, part. - about whole Europe; Ilić, 2005: 24 part. - Serbia; Bartenev, 2009: 31, part. - from France to Urals.

Rhamnusium bicolor var. *atripenne* Bedel, 1897: 43 - "Paris (jardin de Luxembourg)".

Rhamnusium bicolor var. *humerale* Bedel, 1897: 43 - no locality.

Rhamnusium bicolor var. *capitale* Pic, 1898: 2 - „Autriche“.

Rhamnusium gracilicorne var. *inapicale* Pic, 1901b: 31 - no locality published.

Rhamnusium rufostestaceum Pic, 1913: 138 - "Thuringe".

Rhamnusium virgo, Silfverberg, 1977: 93 - unavailable name; Pesarini & Sabbadini, 1994: 15, 70 (unavailable name) - "Europe centrale et meridionale".

Rhamnusium bicolor, Ganglbauer, 1882: 717 - "Europa"; Aurivillius, 1912: 166, part. - Mittel- und Südeuropa, Sibirien; Winkler, 1929: 1147, part. - "E.c.m. Sib."; Plavilstshikov, 1936: 148, 505, part. - "Europa, Mittel- und Südteil der UdSSR"; Heyrovský, 1955: 80, part.; Panin & Săvulescu, 1961: 86 - Romania; Mikšić, 1971: 9 - Slovenia, Croatia, Bosnia and Herzegovina, Serbia; Kaszab, 1971: 45 - Hungary; Allenspach, 1973: 36 - Switzerland; Villiers, 1978: 89, part. - "Europe centrale et méridionale, à l'Est jusqu'à l'Oural"; Lobanov et al., 1981: 795, part. - European part of USSR, West Europe; Bílý & Mehl, 1989: 39, part. - Finland, C. and S. Europe including Estonia; Švácha, 1989: 36, part. (larvae); Muylaert, 1990: 30 - Belgium; Angelov, 1995: 53 - Bulgaria; Bense, 1995: 109, part. (= *graecum*); Vives, 1984: 66, part.; 2000: 76, 221 - Iberian Peninsula; 2001: 119, part.; Burakowski, 1990: 29, part. - Europe "na wschod do południowego Uralu"; Zagaicevich, 1991: 147, 150, 151, 154, part. - Ukraine; Brustel et al., 2002: 445, part. (= *graecum*); Sama, 2002: 11, part.; Adlbauer, 2005: 71 - Austria; Sláma, 2006: 4 - Central Europe; Migliaccio et al., 2007: 17 - Bulgaria; Bartenev, 2009: 31, part. - West Europe.

Rhamnusium bicolor bicolor, Althoff & Danilevsky, 1997: 9, part. - West Europe; Sláma, 1998: 187 - "Česká republika i Slovenská republika"; Vives & Alonso-Zarazaga, 2000: 597; Ilić, 2005: 23, part. - Serbia; Brehl et al., 2006: 113 - Slovenia; Löbl & Smetana, 2010: 135, part. - about whole Europe; Özdişmen & Turgut, 2010: 815.

Remarks. The name "ambustum Heyd." was introduced as *Rhamnusium bicolor* var. *ambustum* Heyden, 1877 among other variations from same locality: „Drei Linden“ bei Soden, so it was unavailable.

The name *Rhamnusium bicolor* var. *humerale* Bedel, 1897 was introduced without any locality data. Specimens with blue-black elytra and orange humeri are rather often in *Rh. bicolor graecum*, so the traditional attribution of the name to *Rh. b. bicolor* could be wrong.

Type locality. Austria, Vienna environs - according to the original description.

Material examined. 14 ♂♂, 11 ♀♀: "Wien Umg.", "Umgeb. von Wien", "Marchfeld Oberweiden" - BMNH; 1 ♂: "Wien" - ZMM; 1 ♂, 1 ♀: "Graz, Styria" and "Gonohits, Styria" - BMNH; 1 ♂: "Amras b. Innss." - BMNH; 4 ♂♂ and 2 ♀♀: "Germania, Reitter" - BMNH; 1 ♂, 1 ♀: with same label - ZMM; 1 ♂ with same label - MD; 2 ♂♂: "Umgebung München" and "München" - ZMM; 1 ♂: Pfalz, Medard, 12.vi.1977, leg. Schimmel - MD; 2 ♂♂, 6 ♀♀: "Hanau, Main" - BMNH; 1 ♂, 1 ♀ with same label - ZMM; 1 ♂ with same label - MD; 4 ♂♂, 1 ♀: "Pr. Sachsen" - BMNH; 1 ♀: "Sachsen" - ZMM; 1 ♂: "Silesia" - ZMM; 1 ♂: "Silesia, Guhrau" - MD; 2 ♂♂, 2 ♀♀: "Gallia" and "Gallia merid." - BMNH; Paris; 1 ♂, 4 ♀♀: "Gallia, Paris" and "Paris" - BMNH; 2 ♀♀: "Lyon" and "Lyon-la-Foret" - BMNH; 3 ♂♂, 2 ♀♀: "Pouzadé, Gers, J. Dayrem" [Pouzadé, 43°.55'17"N, 0°.34'0"E, a farm at 1 km South of Coches, Gers Region, France] - BMNH; 1 ♂ (red-orange dorsally), "Coche, Gers, J. Dayrem" - BMNH; 1 ♂, 1 ♀: "Suisse" - BMNH; 1 ♂: "Emilia, Parma" - BMNH; 1 ♂: "Parma, Faenza - MD; 1 ♀: "Trieste" - ZMM; 1 ♀: "Hungary" - BMNH; 1 ♂: "Kelecsényi" - ZMM; 2 ♂♂: "Bohemia" - ZMM; 1 ♂, 2 ♀♀: "Czech Republic, Bohemia mer., Hluboká nad Vltavou - Vondrov, 16.vi.2010, on *Aesculus*, leg. Tomáš Peterka - TP; 1 ♂: West Ukraine, "Podolién, Sokolow" "Kamenetz" - ZMM; 9 ♂♂ and 14 ♀♀ without geographical labels, but most probably from West Europe - BMNH.

1

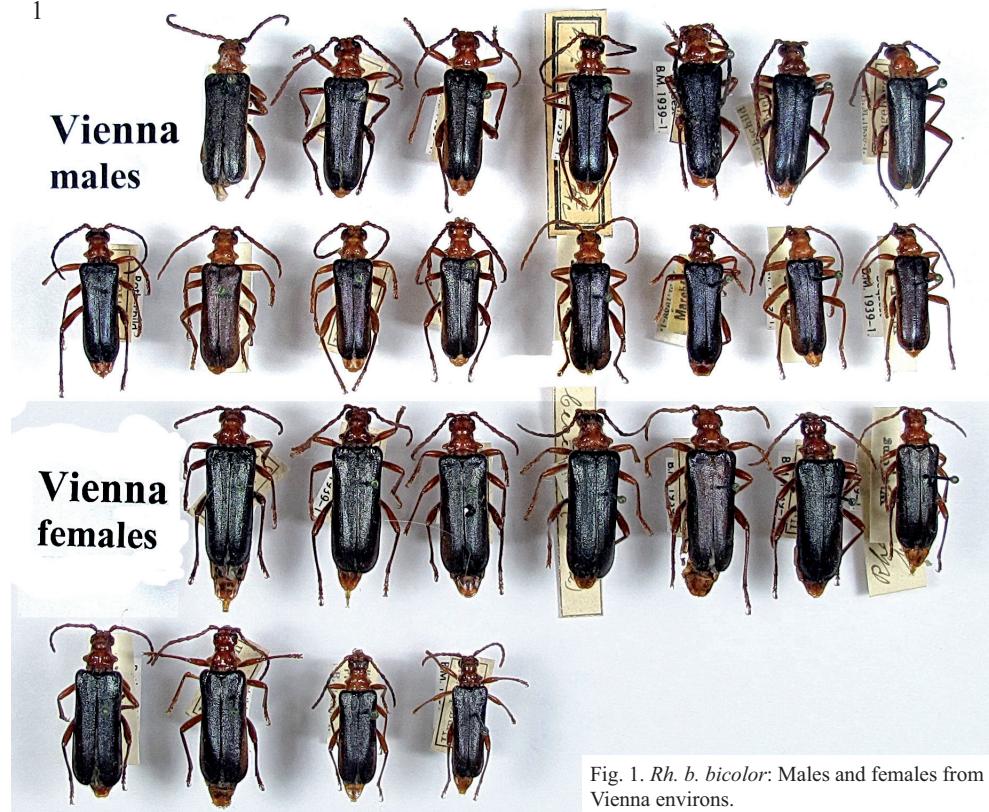


Fig. 1. *Rh. b. bicolor*: Males and females from Vienna environs.

Description. Males with blue elytra dominate in most populations from Austria, Germany and France. This character was also mentioned by Villiers (1978) for France. All known specimens from Belgium are with blue-black elytra (Muylaert, 1990). Among 29 available specimens from Vienna environs (16 ♂♂ and 13 ♀♀) all(!) ♂♂ (Fig. 1) have blue elytra, as well as five of seven males with the label: “Germany, Reitter” and five of seven males from France; but all (4 ex.) available males with label “Sachsen” have orange elytra, as well as two of three available males from Hanau-am-Main and a single male from Medard (Pfalz); scutellum of males with light elytra is usually black, but sometimes lightened; females are always with dark-blue elytra (Fig. 1); 5th antennal joint usually relatively wide; the shape of temples (Figs 2-3), shape of lateral prothoracic tubercles (Figs 4-6) and shape of last abdominal male sternite - characters used by Villiers (1978) - do not have any taxonomy value, as they often vary considerably inside one population. Obliterated temples (which were figured by Villiers as the character of the taxon) are extremely rare in *Rh. b. bicolor* (Fig. 2); temples are usually strongly developed (Fig. 3) similar to other subspecies. Lateral tubercles of prothorax (Figs 4-8) in population from near Vienna can be long and narrow, big and wide or rather obliterated; character of elytral sculpture (used by Plavilstshikov, 1936) is

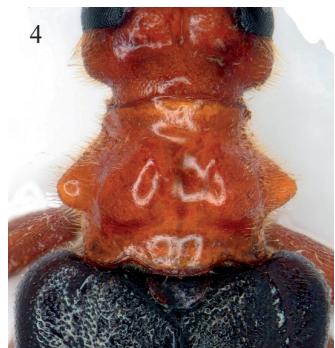


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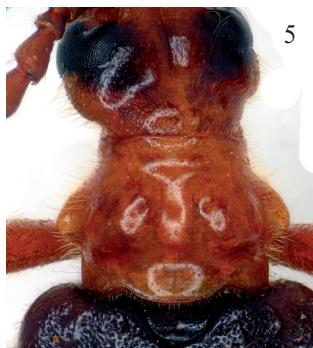


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Figs 2-3. *Rh. b. bicolor*: Shape of temples in females from Paris environs.



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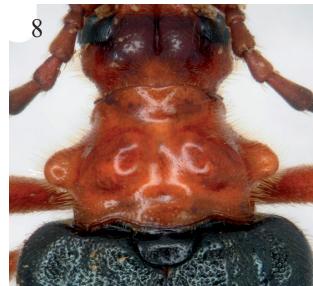
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Figs 4-8. *Rh. b. bicolor*: Shape of prothoracic tubercles in males and females from Vienna environs.

4 - ♂-1, 5 - ♂-2, 6 - ♀-1, 7 - ♀-2, 8 - ♀-3.

also strongly variable inside Vienna population - from fine and regular to coarse and rugous; antennae from totally red to bicolored - black from 5th joint to the apex. In typical population from near Vienna about half of specimens have bicolored antennae, but in populations from France - about all. Legs (with the exception of certain coxae and sometimes bases of hind femora) and abdomen are red-orange, as well as head and prothorax, though head sometimes with black dorsal spot as well as anterior abdominal sternites (especially in specimens from western parts of the area). In general, males and females are bigger than specimens from East Europe. Length of available males: 14-23 mm, length of available females 15-24 mm.

Distribution. North Spain, about whole France (without Corsica), Switzerland, about whole Germany, Czech Republic, Austria, North Italy; all countries northwards Balcan Peninsula: Slovenia, Croatia, Serbia, Bosnia and Herzegovina, Macedonia, Albania. The transitional zone to *Rh. b. graecum* from the south of Balcan Peninsula is not clear. The situation in Central Italy is also not clear, most probably the transitional populations to *Rh. bicolor demaggii* Tippman, 1956 (with darker abdomen) from Lazio and to *Rh. bicolor italicum* from South Italy (similar to *Rh. b. graecum*) could occur here. The record of *Rh. b. bicolor* for Sicily (Sama, 1988) was most probably wrong - a local subspecies (yet not described) must be distributed here. The populations from the eastern part of West Europe (Poland, Czech Republic, Slovakia, Hungary, Romania, Bulgaria, West Ukraine) could be provisionally attributed to the nominate subspecies, but local specimens need special investigation because of its transitional character to the distinct new subspecies distributed in East Europe and described below.

Remark. The nominate subspecies is characterized first of all by the domination of ♂♂ with dark-blue or nearly black elytra (head, pronotum and legs always red) in most of populations. ♀♀ are usually similarly colored. Besides, the 5th antennal joint is relatively wide.

***Rhamnusium bicolor constans* ssp. nov.**

(Figs 9-12)

Rhamnusium bicolor var. *gracilicorne*, Zhuravlev, 1914: 37 - Kazakhstan, Uralsk Region.

Rhamnusium gracilicorne, Plavilstshikov, 1936: 150, 506, part. - "Mitteleuropa; Ukraine, Süden der UdSSR"; 1955: 498, part. - steppe and forest-steppe of European USSR, West Europe; 1965: 398, part. - steppe and forest-steppe of European USSR; Romadina, 1954: 216 - NW Kazakhstan, Ural-River Valley, Yanvartzevo; Kostin, 1973: 133 - NW Kazakhstan, Ural-River Valley; Mamaev & Danilevsky, 1975: 116, part. (larvae); Villiers, 1978: 91, part. - "Allemagne, Europe centrale et méridionale, Ukraine, Sud de l'U.R.S.S"; Tsherepanov, 1979: 85, part. - western and eastern Europe, eastwards South Urals; Lobanov et al., 1981: 795, part. - European part of USSR, Kazakhstan, West Europe; Magdeev, 1988: 61 - Kuybyshev [now Samara]; Althoff & Danilevsky, 1997: 9, part. - about whole Europe; Kasatkin & Arzanov, 1997: 68, part. - "Volgograd Region: Dubovka"; Bartenev, 2009: 31, part. - from France to Urals.

Rhamnusium bicolor; Aurivillius, 1912: 166, part. - Mittel- und Südeuropa, Sibirien; Winkler, 1929: 1147, part. - "E.c.m. Sib."; Plavilstshikov, 1932: 188, part. - centr and south of European USSR, Caucasus; 1936: 148, 505, part. - "Europa, Mittel- und Südteil der UdSSR"; 1955: 498, part. - from Volga Valley [!] to Urals and to Black Sea, West Europe; 1965: 398, part. - southwards from Leningrad, Gorkiy, Kazan; Mamaev & Danilevsky, 1975: 116, part. (larvae); Villiers, 1978: 89, part. - "Europe centrale et méridionale, à l'Est jusqu'à l'Oural"; Lobanov et al., 1981: 795, part. - European part of USSR, West Europe; [?] Bílý & Mehl, 1989: 39, part. - Finland, C. and S. Europe including Estonia; Švácha, 1989: 36, part. (larvae); Burakowski, 1990: 29, part. - Europe "na wschód do południowego Uralu"; Zagaicevich, 1991: 147, 150, 151, 154, part. - Ukraine; Kasatkin & Arzanov, 1997: 68, part. - Rostov Region: Mityakinskaya; Süda & Miländer, 1998: 44 - Estonia; Sama, 2002: 11, part.

Rhamnusium bicolor bicolor; Löbl & Smetana, 2010: 135, part. - about whole Europe.

Type locality. Central Russia, Samara.

Type material. Holotype (♂) (Fig. 9): Central Russia, Samara-city, 16.vi.2007, D. Magdeev leg. - MD. (64 paratypes): (18 ♂♂, 11 ♀♀) from same locality collected from the beginning of June to the beginning of July in 1982-2009 by D. Magdeev - MD; (1 ♀): Moscow, Ostankino, 1905 - MD; (1 ♀): Moscow, near "Sokol" subway station, 8.6.1986, V. Grachev leg. - MD; (3 ♂♂, 7 ♀♀): Moscow, near "Shchukinskaya" subway station, 10.v.-13.vi. 2005-2011, A. Shamaev leg. - AS; (1 ♂, 4 ♀♀): Moscow Region, Tomilino, 3-8.vi.2010, A. Shamaev leg. - AS; (1 ♀): Chuvashia, Morgaushi Distr., Kashmashi, 18.vi.2010, A. Shamaev leg. - AS; (1 ♂): Saratov Region, Krasnyy



Figs 9-10. *Rh. b. constans* ssp. n.; 9 - holotype, ♂; 10 - paratype, ♀, Russia, Samara.

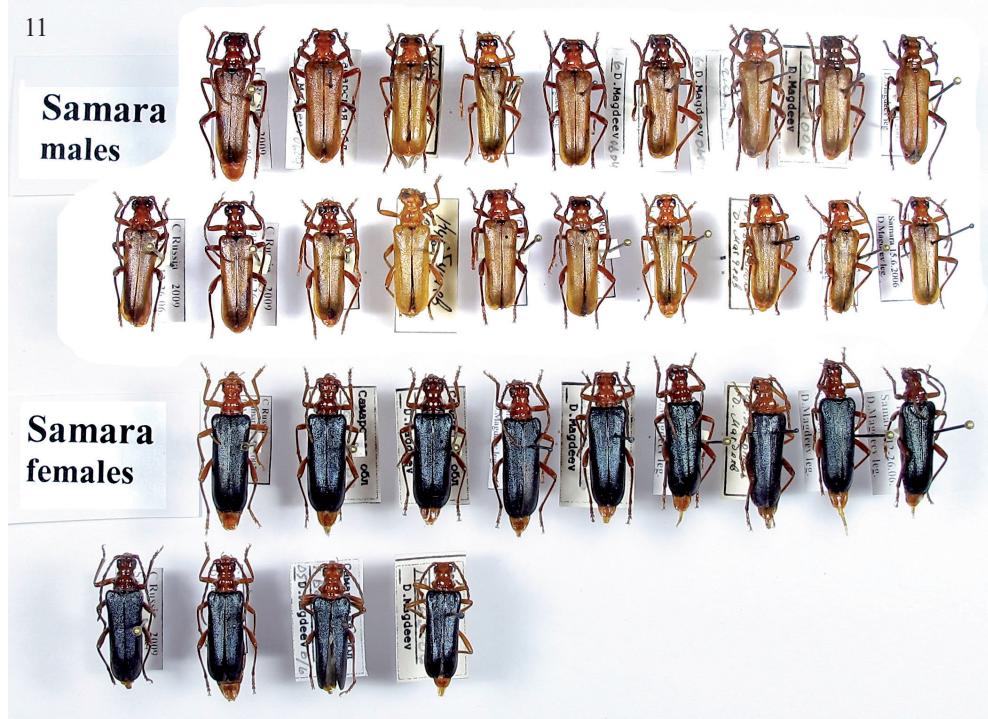


Fig. 11. *Rh. b. constans* ssp. n., type series, males and females from Samara-city.

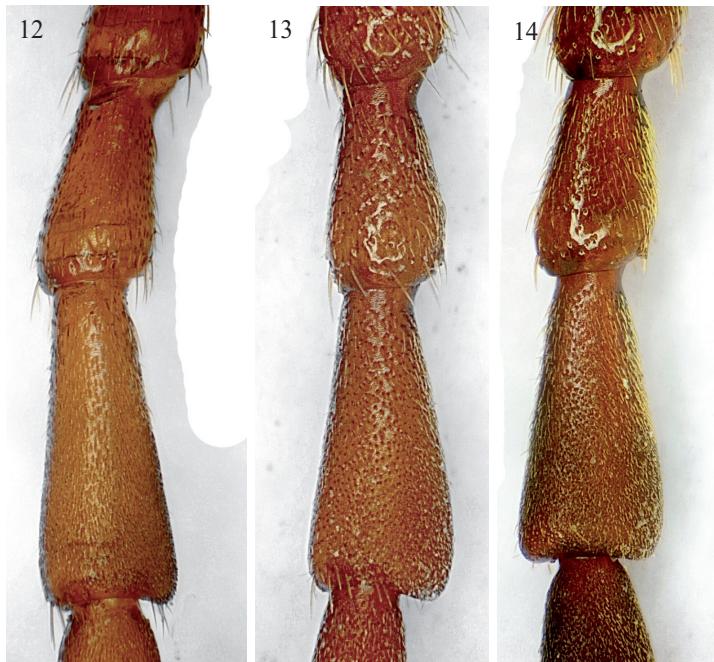
Kut, larva collected 24.ii.1979 from *Salix*, imago ex.l. 4.iv.1979 - MD; (1 ♀): "Gouv. Saratov, Fl. Achtuba, S. Achtuba, 11.vi.1928, A. Menstschikow" [now in Volgograd Region] - ZMM; (1 ♀): "Stalingrad, 1932, B. Brandt leg." - ZMM; (1 ♂, 2 ♀♀): "Stalingrad, Beketovka [inside Volgograd -city], 18.v.1950, 7.v.1951, G. Mazokhin leg." - ZMM; (1 ♂): [Volgograd Region] "Kamyshin, 19.v.1950, L. Zhiltzova leg" - ZMM; (1 ♀): (with black-blue elytra), Rostov Region, Mityakinskaya, 25.v.1997 - SM; (1 ♂, 3 ♀♀): Ukraine, "Tschernigov, 29.vi.1919" - ZMM; (2 ♀♀): Ukraine, "Kiev, Sapernaya Datcha, 17.v.1907 and 17.v.1908, Panin leg." - ZMM; (2 ♀♀): Ukraine, "Zhitomir" - ZMM; (1 ♀): "Ukraine, Kharkov env., 10.vi.1940, A. Shachbasov leg." - MD; (1 ♀): "Ukraine, Cherkasy Region, Kanev distr., Mikhaylovka, 15.6.1984, V. Grachev leg." - MD.

Description. Males usually with red-orange elytra (Figs 9, 11); females are usually with dark-blue elytra (Figs 10, 11); no males with blue elytra are known from Volga Valley and east of the Volga; according to Shapovalov (2010), in Orenburg Region all males dorsally red and all females with black-blue elytra (all specimens with totally reddish antennae); among 17 specimens (4 ♂♂, 13 ♀♀) known to me from Moscow-city with suburbs only 1 male has blue elytra, and only 1 female has red elytra; scutellum in males usually black, but sometimes lightened; 5th antennal joint elongated (Fig. 12); strongly obliterated temples, figured by Villier (1978) for his "*Rh. bicolor*" could also be sometimes observed in specimens from near Samara; lateral prothoracic tubercles can also be rather different among one population, with different shape and relative size; elytral punctuation is usually fine and regular, but sometimes a little rugous; antennae almost always totally red, but sometimes bicolored - a single male in the type series (Samara); legs (with the exception of certain coxae and sometimes bases of hind femora) and abdomen red-orange, as well as head and prothorax; about half of males of the type series (including holotype) with a pair of black spots between eyes; females usually with blue elytra; but all females (4 specimens available) from Volgograd Region with red elytra. Males and females are in general smaller than the specimens from West Europe. Length of available males: 15-20 mm, length of available females: 17-21 mm.

Distribution. About whole European Russia with the exception of marginal northern areas, but with transural Asian localities of Orenburg region; North-West Kazakhstan along Ural river valley. Most probably the records of *Rh. bicolor* from Baltic republics and South Finland were connected with *Rh. b. constans* ssp. nov. All records from Central and Eastern Ukraine must concern *Rh. b. constans* ssp. nov., as well as records from Belorussia. The species was not found in Sankt-Peterburg environs. It is rather common inside Moscow-city along boulevards with *Populus* and in city parks, as well as inside Samara-city; known from Tula Region and rather common in Voronezh Region; many records were published from Middle Volga areas (Chuvashia, Tatarstan, Samara, Ulyanovsk) and from South Volga (Saratov, Volgograd), but the taxon was not found in Astrakhan Region; absent in Udmurtia. The southernmost localities in European Russia are Mityakinskaya environs in Rostov Region (Kasatkin & Arzanov, 1997) and Akhtubinsk in Volgograd Region. No records from North Caucasus (including whole Krasnodar and Stavropol regions) could be connected with *Rh. b. constans* ssp. nov., corresponding specimens being absent in the collections.

Name derivation. "Constans" means constant - with small range of individual variability.

Remark. The main character of the new subspecies is a very high level of sexual dimorphism: the domination of red (dorsally) males and bicolored females (head and prothorax red, but



Figs 12-14. Shape of 5th antennal joint (right antenna):
12 - *Rh. b. constans* ssp. nov.;
13 - *Rh. b. testaceipenne*;
14 - *Rh. b. juglandis*.

elytra black-blue) in about all known populations (with only one exception: in Volgograd population males and females have same color - both red), besides 5th antennal joint with obliterated outer angle.

Rhamnusium bicolor testaceipenne Pic, 1897 (Figs 15-16)

Rhamnusium testaceipenne Pic, 1897: 299 - "Caucase"; 1901b: 31 - "Caucase"; Aurivillius, 1912: 167, part. - "Kaukasus, Amasia, Turkey"; Winkler, 1929: 1147, part. - Caucasus, Asia Minor, Turcia europae; Plavilstshikov, 1932: 188 - Caucasus; 1936: 152, 506, part. - "Kleinasiens, Syrien, Krim, Kaukasus, Trancaucasien"; 1948: 33, part.; 1955: 498, part.; Lobanov et al., 1981: 795 - European part of USSR, Caucasus, Near East; Danilevsky & Miroshnikov, 1985: 126, part.; Zagaikevich, 1991: 147, 153 - Crimea; Althoff & Danilevsky, 1997: 9 - Crimea; Kasatkin & Arzanov, 1997: 68 - Krasnodar; Özdkmen, 2007: 192, part. - "Europe (Crimea), Caucasia, Transcaucasia, Near East, Turkey, Syria, Iran"; Bartenev, 2009: 33, part. - Crimea, Caucasus, Transcaucasia, Near East, Syria, Turkey, North Iran; Cebeci & Özdkmen, 2010: 136, part. - "Europe (Crimea), Caucasia, Transcaucasia, Near East, Turkey, Syria, Persia".

Rhamnusium testaceipenne var. *mesmini* Pic, 1931: 6 ("Caucase").

Rhamnusium bicolor; Plavilstshikov, 1955: 498, part. - from Volga Valley to Urals and to Black Sea, West Europe.

Rhamnusium juglandis, Sama, 2002: 11, part; Löbl & Smetana, 2010: 135, part. - South Russia, Transcaucasia, Near East, Iran.

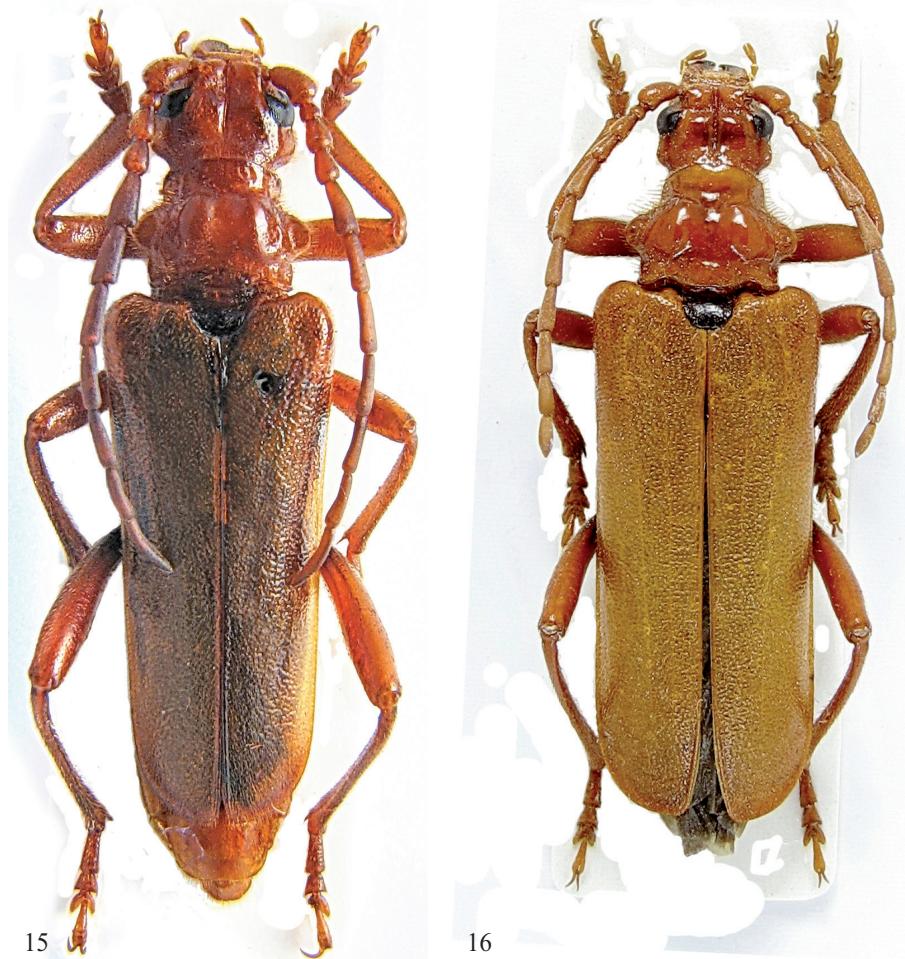
Type locality. North-West Caucasus - according to the original description and the area of the taxon.

The name "Caucase" was traditionally used for North Caucasus, and the taxon is still only known from the west part of North Caucasus.

Material examined. 1 ♂: Russian Black See Coast, "Cauc. occ. bor., Gelendzhik, 17.v.1926" - ZMM; 1 ♂, "Gelendzhik, 26.v.1974, L. Solovyev leg." - MD; 1 ♂: "Krasnodar env., 6.vi.1992" - MD; , 1 ♀ (ex larva): "Krasnodar

env., 4.iii.1973" - MD; 2 ♀♀: Krasnodar env., 3.vi.1994 and 29.v.1995, A. Abramov leg.; 3 ♀♀: "Armenia, Tavush prov., 2 km S Zovk, 930 m, 40°47'N, 45°02'E, 28.v.2005, M. Kalashian leg." - MD; 1 ♀: "Caucas, Kutais" - ZMM; 1 ♂: South Crimea, "Karadag Mt., 20.v-2.vi.1919" - ZMM; 1 ♂: "Crimea, Otusy, 19.v.1907" - ZMM; 1 ♂: "Simferopol, 21.v.1931" - ZMM.

Description. Males and females (Figs 15-16) are always similarly colored, with red-orange elytra; scutellum black or also red-orange; 5th antennal joint relatively short and wide (Fig. 13); temples often very long, diverging posteriorly, but sometimes more or less obliterated; lateral prothoracic tubercles can be rather different within one population, with different shape and relative size; elytral punctuation usually fine and regular, but sometimes a little rugous; antennae about always totally red, but sometimes a little darkened distally from 5th



Figs 15-16. *Rh. b. testaceipenne*: 15 - ♂, Krasnodar env.; 16 - ♀, Krasnodar.



joined, but never really bicolored; legs with dark bases of hind femora, but other femora and all tibiae are always totally light; abdomen almost always partly darkened anteriorly. Length of available males: 16-18 mm, length of available females: 16-20 mm.

Distribution. Most part of Krasnodar region, many specimens being known from the nearest environs of the city; Black Sea coast of Russia, as well as all Black Sea Transcaucasian coast; the taxon is known from Georgia eastwards to about Kutaisi (a female from Kutaisi is available - ZMM); a big series was collected in Armenia near Idzhevan; south coast of Crimea Peninsula; North-east Turkey close to Caucasus.

Remark. The main character of the subspecies is same color pattern in males and in females; both always with red head, prothorax, elytra and legs; besides 5th antennal joint relatively wide; abdomen and femora bases partly darkened.

***Rhamnusium bicolor lenkoranum* ssp. nov.**
(Figs 17-22)

Rhamnusium graecum, Plavilstshikov, 1932: 188 - Caucasus; 1936: 147, 505, part. - "Griechenland, Syrien, Kleinasiens, Transcaucasien"; 1948: 33, part.; Zaitzev, 1954: 6, part. - Tbilisi (1ex.), Armenia, Azerbajdzhan, Greece, Anatolia; Lobanov et al., 1981: 795, part. - Caucasus, Near East, Balkans; Danilevsky & Miroshnikov, 1985: 126, part.; Sama, 1988: 12, part. - "Grecia, Asia Minore, Siria, Caucaso".

Rhamnusium testaceipenne, Villiers, 1967: 347, part. - "Iran: Tariki Rud"; Švácha, 1989: 37 - larvae; Özdkmen, 2007: 192, part. - "Europe (Crimea), Caucasia, Transcaucasia, Near East, Turkey, Syria, Iran"; Bartenev, 2009: 33, part. - Crimea, Caucasus, Transcaucasia, Near East, Syria, Turkey, North Iran; Cebeci & Özdkmen, 2010: 136, part. - "Europe (Crimea), Caucasia, Transcaucasia, Near East, Turkey, Syria, Persia".

Rhamnusium juglandis, Löbl & Smetana, 2010: 135, part. - South Russia, Transcaucasia, Near East, Iran.

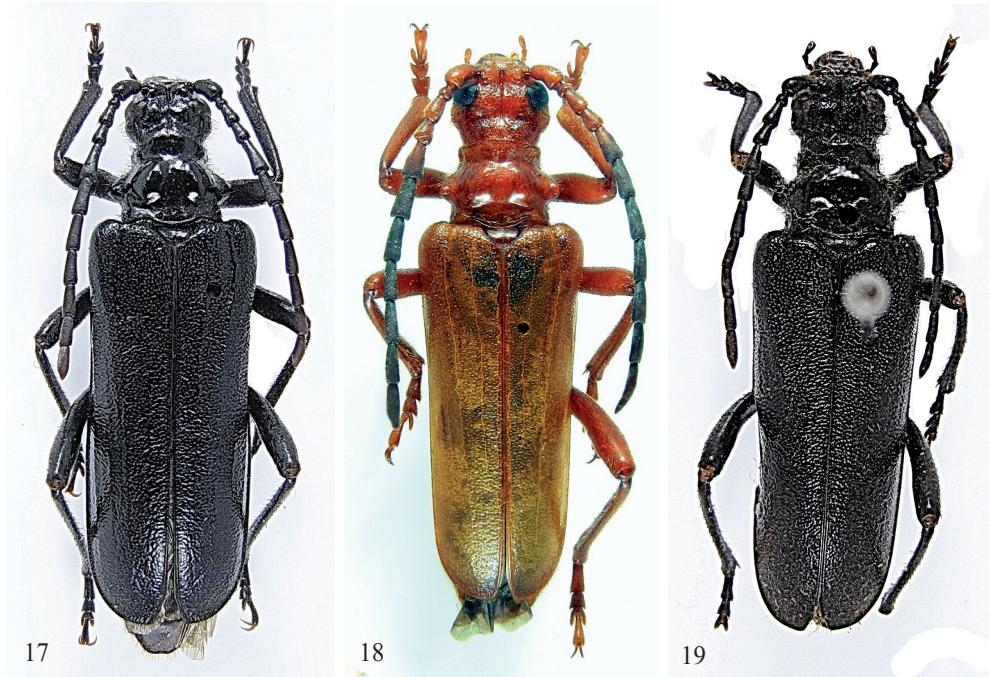
Rhamnusium graecum graecum, Löbl & Smetana, 2010: 135, part. - Transcaucasia, Greece, Turkey; Cebeci & Özdkmen, 2010: 135, part. - Greece, European Turkey, Transcaucasia, Azerbaijan, Armenia, Syria, Turkey, Persia.

Rhamnusium juglandis, Löbl & Smetana, 2010: 135, part. - Turkey, Syria, South Russia, Caucasus, Ukraine, Iran.

Type locality. Azerbajdzhan, Lenkoran District, Avrora, 38°39'N, 48°47'E.

Type material. Holotype (♀): Azerbajdzhan, Lenkoran District, Avrora, 38°39'N, 48°47'E, 14.5.1980, M. Danilevsky leg. - MD. (25 paratypes): (1 ♂): Azerbajdzhan, Kumbashi, 20km N Lenkotran, 28.v.1909, Kirichenko leg. - ZIN; (1 ♂): "N Iran, p. Mazandaran, Kandelous, 60 km SE Calus, 3624N, 5131E, 1315 m, 24-25.v.2003, lgt. P. Kabatek" - MD; (2 ♂♂): with same label - PK; (3 ♂♂, 4 ♀♀): N Iran, p. Gilan, 40 km E Rudbar, 3648N 4938E, 1127 m, 27.v.2003, adults in a hollow *Fagus*, lgt. M. Rejzek - MR; (2 ♀♀): "N Iran, p. Gilan, 42 km SSE Rast, 3651N, 4941E, 1059 m, 28.v.2003, leg. P. Kabatek" - PK; (3 ♂♂, 4 ♀♀): with same data, adults in a hollow *Quercus* sp., lgt. M. Rejzek - MR; (1 ♂): "Iran, Mazandaran, Now Kandel, 14.v. 1997, leg. M. Skorpik" - PK; (2 ♂♂): Armenia, Megri, 10.v.1983, V.Tuzov leg. - MD; (1 ♀): Armenia, Megri, 15.v.1972 - MD; (1 ♀): [NW Azerbaidzhan] "Kaukasus, Nukha [now Sheki], Maljushenco" - ZMM.

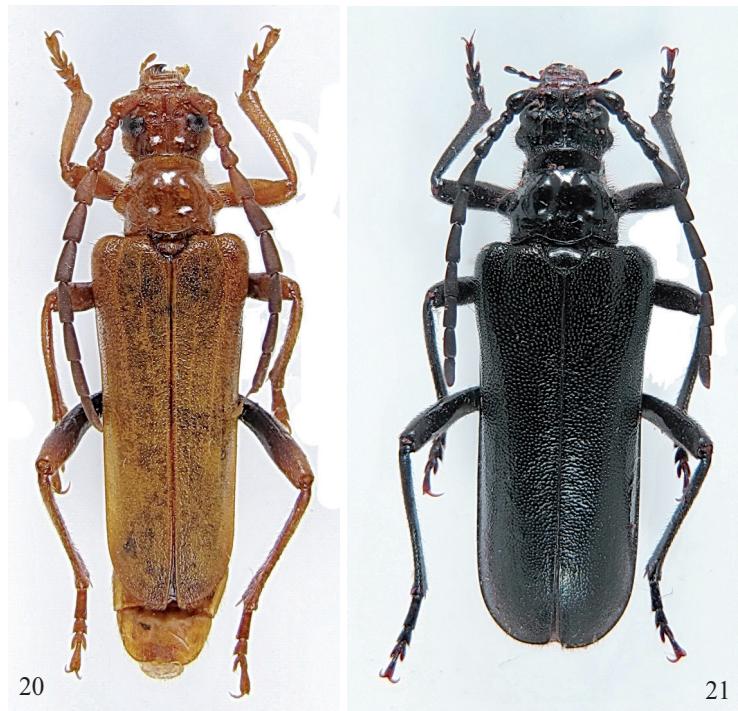
Description. Males (Figs 18, 20, 22) are always with red head, prothorax, elytra and legs; scutellum black or also red-orange; females (Figs 17, 19, 31, 22) are always totally blue-black or nearly black; 5th antennal joint wide and short; temples usually relatively long, but sometimes more or less obliterated; lateral prothoracic tubercles well developed; elytral punctuation rather different in different specimens: fine and regular, or more or less rugous; antennae in males totally red or strongly bicolored; legs in males usually with dark bases of hind femora, but other femora and all tibiae are always totally light; head without black spots;



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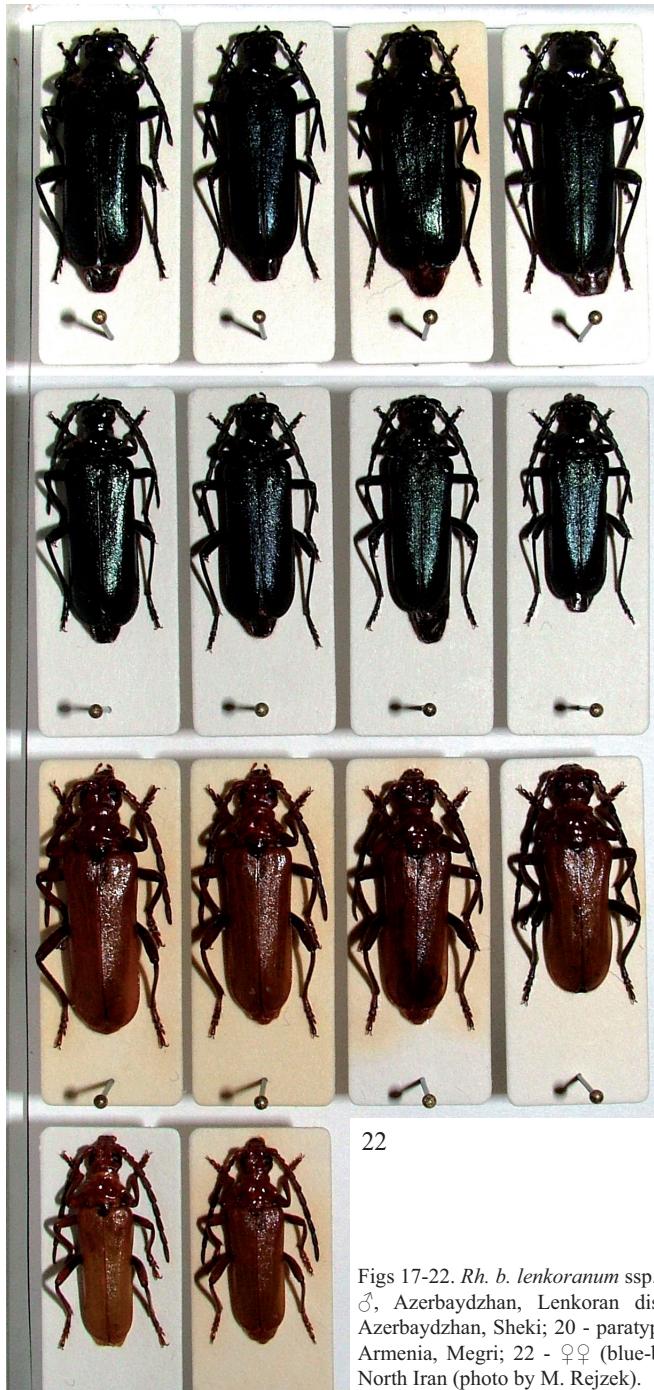
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Figs 17-22. *Rh. b. lenkoranum* ssp. nov.: 17 - holotype, ♀; 18 - paratype, ♂, Azerbaydzhan, Lenkoran distr., Kumbashi; 19 - paratype, ♀, Azerbaydzhan, Sheki; 20 - paratype, ♂, Armenia, Megri; 21 - paratype, Armenia, Megri; 22 - ♀♀ (blue-black) and ♂♂ (red): paratypes from North Iran (photo by M. Rejzek).

abdomen about always partly darkened anteriorly. Length of available males 14-24.1 mm, length of available females 18-24 mm.

Distribution. East Transcaucasia (the record for Tbilisi needs confirmation); the westernmost definitely known localities are Megri environs in South Armenia and Sheki environs in North West Azerbaijdzhan; most of known Transcaucasia specimens were collected in Lenkoran District of Azerbaijdzhan; North Iran in Gilan and Mazanderan; most probably absent in Turkey.

Name derivation. The specific epithet “lenkoranum” is connected with the name of the type locality – Lenkoran District in Azerbaijdzhan.

Remark. The taxon was usually traditionally treated within *Rh. graecum*, because of totally black-blue females but the new subspecies is strongly distant and geographically isolated from *Rh. b. graecum*, known from Balcan Peninsula only. All the known populations of *Rh. b. graecum* are also characterized by a strong level of individual variability in males and females, while *Rh. b. lenkoranum* ssp. n. is rather constant - males have always red elytra, females being always totally black-blue.

***Rhamnusium bicolor graecum* Schaufuss, 1862**

(Figs 23-29)

Rhamnusium graecum Schaufuss, 1862: 311 - „Graecia“; Ganglbauer, 1882: 717, part. - “Griechenland, Syrien”; Bedel, 1897: 44, part.; Aurivillius, 1912: 167, part. - “Griechenland, Kleinasiens, Syrien”; Winkler, 1929: 1147, part. - “Gr. Asm. Ca. Syr.”; Plavilstshikov, 1936: 147, 505, part. - “Griechenland, Syrien, Kleinasiens, Transcaucasien”; 1948: 33, part.; Lobanov et al., 1981: 795, part. - Caucasus, Near East, Balkans; Danilevsky & Miroshnikov, 1985: 126, part. - Transcaucasia, Balkans, Near East, Turkey, Iran; Sama, 1988: 12, part. - “Grecia, Asia Minore, Siria, Caucaso”; Švácha, 1989: 36, part. (larvae [Turkey, Ankara, Kizilkahamam; Turkey, Büyükdar; Greece, Tripolis]) - “East of Mediterranean area (Greece, Turkey, Syria), up to Transcaucasia”; Pesarini & Sabbadini, 1994: 15, part. - “Italia meridionale, Grecia, Turchia europea”; Bartenev, 2009: 31, part. - Italy, Greece, Turkey.

Rhamnusium graecum var. *limbatum* Pic, 1897a: 30 - “Veluchi, dans la Turquie d’Asie”; Pic, 1901b: 31 - “Grèce, Veluchi”.

Rhamnusium gracilicorne, Aurivillius, 1912: 167, part. - “Deutschland, Frankreich, Griechenland”.

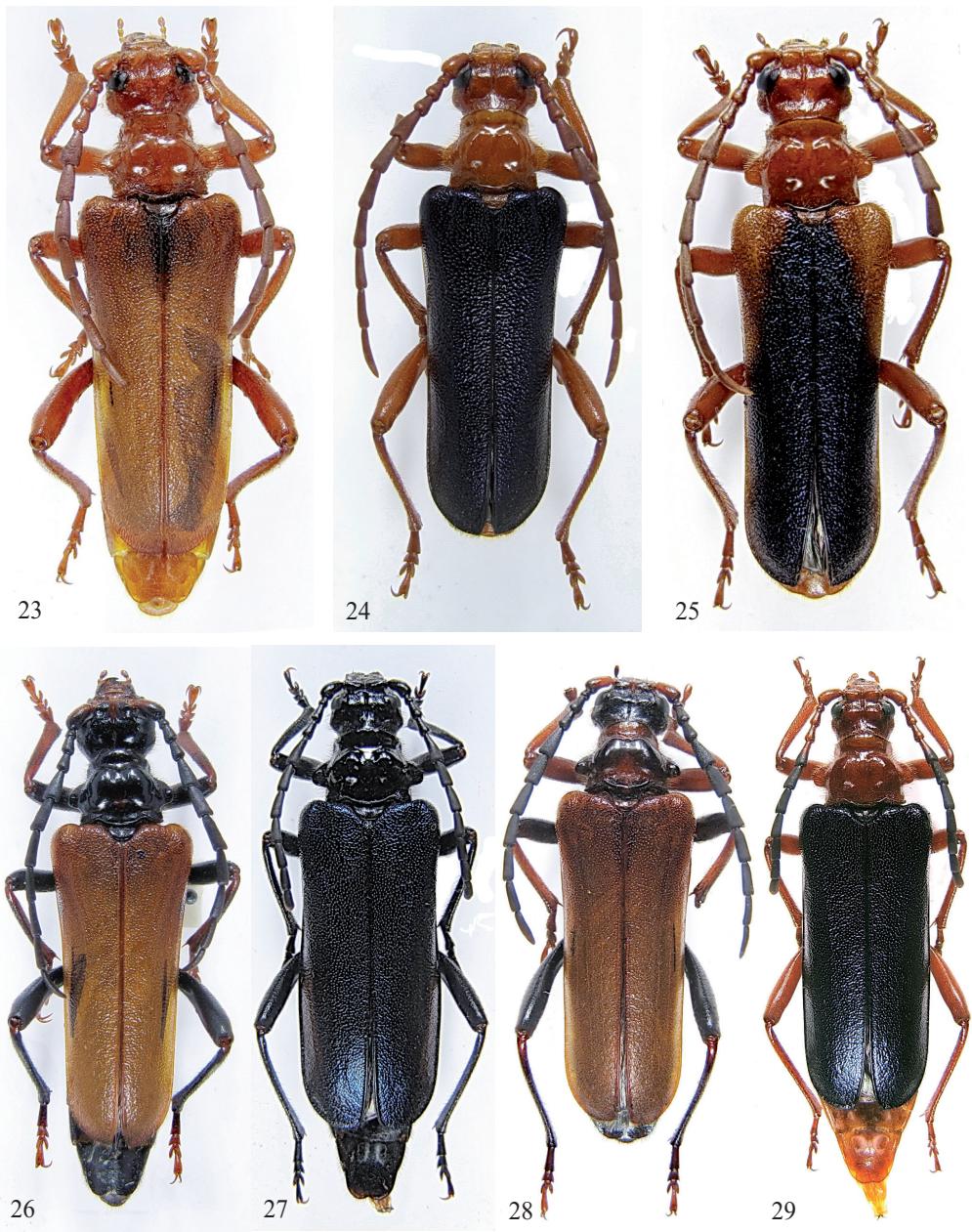
Rhamnusium bicolor; Bense, 1995: 109, part. (=*Rh. graecum*).

Rhamnusium bicolor graecum, Sláma & Slámová, 1996: 128 - Greece. West Makedonia: Kosani; Epirus: Ioannina; Thessaly: Metalio; Peloponnese: Kalavrita, Tripoli.

Rhamnusium graecum graecum, Althoff & Danilevsky, 1997: 9, part. - Italy, Greece, Turkey; Sama, 2002: 11 - “Greece”; Özdi̇kmen, 2007: 192, part. - Europe (Greece, European Turkey), Transcaucasia, Turkey, Iran; Löbl & Smetana, 2010: 135, part. - Transcaucasia, Greece, Turkey; Cebeci & Özdi̇kmen, 2010: 135, part. - Greece, European Turkey, Azerbaijan, Armenia, Syria, Turkey, Iran.

Type locality. Greece - according to the original description.

Material examined. 1 ♀ [bicolored]: “Graec.” - ZIN; 1 ♀ [black-blue]: “Veluchi, Dr. Krüper” - BMNH; 1 ♀ [black-blue]: “Graecia, Pelop., Tripolis, vi.1981, J. & M. Sláma lgt.” - ZIN; 4 ♂♂ [1 - red, 1 - bicolored, 1 - bicolored with red humeri, 1 - black with brown elytra], 4 ♀♀ [3 - blue-black, 1 - bicolored]: “Greece, (Peloponnese), Menalo Mt. r., Vytina, h=1010 m, on trunk of old *Populus* sp., 25-27.v.2010, lg. A. Napolov & I. Roma - AN; 3 ♂♂ [1 - red, 1 - bicolored with red humeri, 1 - with partly black head and prothorax and brown elytra]; same locality, 16-25.v.2010, leg. Tomáš Peterka - TP; 1 ♂ [red elytra, abdomen nearly totally black]: “Greece - Corfu bor., Acharavi, 14.v.1999, leg. T. Peterka - TP.



Figs 23-29. *Rh. b. graecum*: 23-26 - ♂♂, Greece (Peloponnese), Menalo Mt. r., Vytina; 27 - ♂, same locality; 28-29 - ♀♀, Greece (Peloponnese), Menalo Mt. r., Vytina.

Description. The subspecies is characterized by a considerable number of totally black-blue females in populations (Fig. 28); bicolored females (Fig. 29) with red head, prothorax and legs are also known; males are extremely variable: from normal red (Fig. 23) form (with red head, prothorax, legs, and elytra) to normal (Fig. 24) bicolored (with red head, prothorax and legs, but black-blue elytra), but also known bicolored males with orange humeri (Fig. 25) and males with black body, legs and antennae, but brown elytra (Fig. 26) or thorax and legs partly lightened (Fig. 27); red legs usually with black bases of hind femora; pale forms usually with partly black abdomen; antennae from strongly bicolored to totally red; 5th antennal joint with strongly exposed outer apical angle; temples rather long. Length of available males 17-21.3 mm, length of available females 17-21.3 mm.

Distribution. Greece; most of known specimens were collected in Peloponnese; several localities are also known in Central and North Greece; one totally black female is known from Olympus Mt. near Leptokaria (personal message by M. Rejzek, 2011).

Remark. The subspecies is characterized by considerable number of totally dark-blue females in the populations. Normal bicolored females are also known, as well as many differently colored males. Besides, 5th antennal joint is relatively wide.

***Rhamnusium bicolor praeustum* Reitter, 1895**
(Figs 30-34)

Rhamnusium graecum var. *praeustum* Reitter, 1895: 85 - "Akbes in Syrien" [now Antakya in Turkish Hatay]; Bedel, 1897: 44.

Rhamnusium graecum, Ganglbauer, 1882: 717, part. - "Griechenland, Syrien"; Aurivillius, 1912: 167, part. - "Griechenland, Kleinasiens, Syrien"; Winkler, 1929: 1147, part. - "Gr. Asm. Ca. Syr."; Plavilstshikov, 1936: 147, 505, part. - "Griechenland, Syrien, Kleinasiens, Transcaucasien"; 1948: 33, part.; Sama, 1988: 12, part. - "Grecia, Asia Minore, Siria, Caucaso";

Rhamnusium (?var.) *praeustum*, Pic, 1897: 300.

Rhamnusium testaceipenne, Plavilstshikov, 1936: 152, 506, part. - "Kleinasiens, Syrien, Krim, kaukasus, Transcaucasien"; 1948: 33, part.; 1955: 498, part.; Özdi̇kmen, 2007: 192, part. - "Europe (Crimea), Caucasia, Transcaucasia, Near East, Turkey, Syria, Iran"; Bartenev, 2009: 33, part. - Crimea, Caucasus, Transcaucasia, Near East, Syria, Turkey, North Iran; Cebeci & Özdi̇kmen, 2010: 136, part. - "Europe (Crimea), Caucasia, Transcaucasia, Near East, Turkey, Syria, Persia".

Rhamnusium cf. *testaceipenne*, Rejzek et al., 2003: 12 - 3ex. "NW. Syria: Şlīfah E. Latakia".

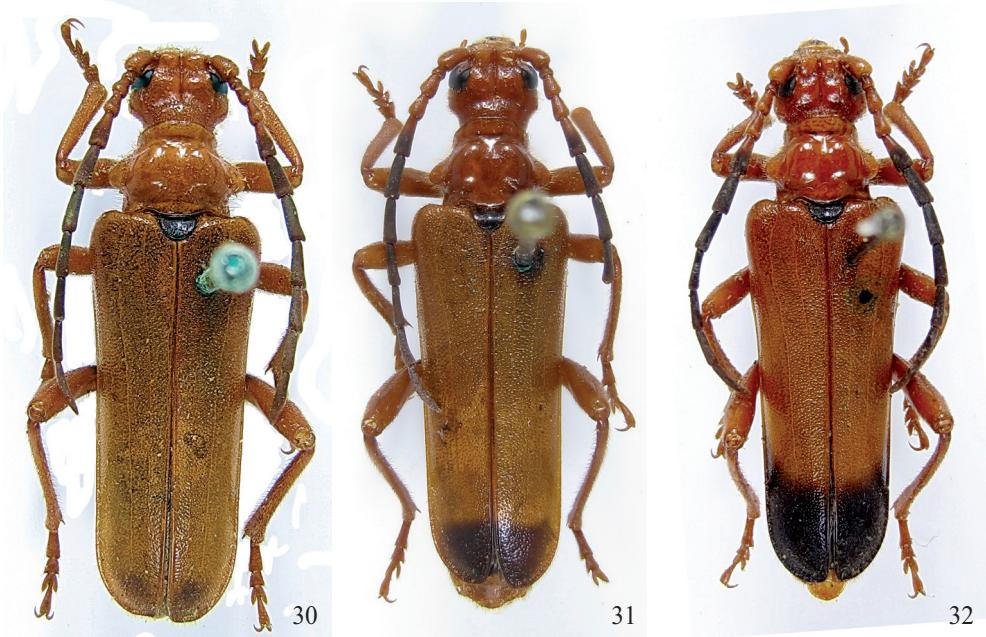
Rhamnusium juglandis, Löbl & Smetana, 2010: 135, part. - Turkey, Syria, South Russia, Caucasus, Ukraine, Iran.

Rhamnusium graecum graecum, Cebeci & Özdi̇kmen, 2010: 135, part. - Greece, European Turkey, Transcaucasia, Azerbaijan, Armenia, Syria, Turkey, Iran.

Type locality. Turkey, Hatay, Antakya environs - according to the original description.

Material examined. 2 ♂♂. 1 ♀: "Amanus Mts., Asia Minor, 1903. 357 - BMNH; 1 ♂: "Syria, Akbes, Stdgr." - ZMM; 1 ♀: "Hoch-Syrien, Akbes, (Staudinger)" - ZIN.

Description. The subspecies is characterized by the presence of light males (orange-red head, prothorax and legs) with black apices of reddish elytra (Figs 31-32), abdomen from totally red to totally black; male with strongly reduced black elytral area is also available (Fig. 30); two available females (Figs 33-34) are normally bicolored (orange-red head, prothorax, legs, abdomen, but black-blue elytra); antennae in a small number of available specimens



Figs 30-34. *Rh. b. praeustum*: 30-31 - ♂♂, Mt. Amanus; 32 - ♂, Akbes; 33 - ♀, Akbes; 34 - ♀, Mt. Amanus.



are always strongly bicolored. Length of available males: 17-21.3 mm, length of available females: 19.7-23 mm.

Distribution. Hatay province in Turkey; north Syria.

***Rhamnusium bicolor juglandis* Fairmaire, 1866**
(Figs 35-38)

Rhamnusium juglandis Fairmaire, 1866: 276 “Bosz-Dagh”; Sama, 2002: 11, part. - “Turkey and Caucasus”; Löbl & Smetana, 2010: 135, part. - Turkey, Syria, South Russia, Caucasus, Ukraine, Iran.

Rhamnusium geniculatum Pic, 1901a: 10 - “Anatolie: Ak-Chéhir”; 1901b: 30, part. - “Grèce, Asie Mineure”.

Rhamnusium delagrangei Pic, 1901a: 10 - “Smyrne”; 1901b: 31; Aurivillius, 1912: 166, part. - “Smyrna”; Winkler, 1929: 1147, part. - “Asm.”.

Rhamnusium testaceipenne var. *anatomicum* Pic, 1901a: 10 - “Anatolie: Ak-Chehir et Amasia; 1901b: 31 - “Amasie”.

Rhamnusium anatomicum var. *obscuripes* Pic, 1903: 163 - “Turquie”.

Rhamnusium testaceipenne var. *rufotibialis* Pic, 1917: 3 - “M^{is} Taurus”.

Rhamnusium graecum, Aurivillius, 1912: 167, part. - “Griechenland, Kleinasien, Syrien”; Winkler, 1929: 1147, part. - “Gr. Asm. Ca. Syr.”; Plavilstshikov, 1936: 147, 505, part. - “Griechenland, Syrien, Kleinasien, Transcaucasien”; Demelt, 1963: 141 - Turkey, “Büyükadar”; Lobanov et al., 1981: 795, part. - Caucasus, Near East, Balkans; Sama, 1988: 12, part. - “Grecia, Asia Minore, Siria, Caucaso”; Švácha, 1989: 36, part. (larvae [Turkey, Ankara, Kizilkahamam; Turkey, Büyükkadar; Greece, Tripolis]) - “East of Mediterranean area (Greece, Turkey, Syria), up to Transcaucasia”.

Rhamnusium graecum var. *juglandis*, Bedel, 1897: 43, part.; Plavilstshikov, 1936: 148, 505, part.

Rhamnusium bicolor; Demelt, 1963: 141 - Turkey, “Büyükadar”.

Rhamnusium testaceipenne, Aurivillius, 1912: 167, part. - “Kaukasus, Amasia, Turkey”; Winkler, 1929: 1147, part. - Caucasus, Asia Minor, Turcia europae; Plavilstshikov, 1936: 152, 506, part. - “Kleinasien, Syrien, Krim, kaukasus, Transcaucasien”; 1948: 33, part.; 1955: 498, part.; Demelt, 1963: 141 - Turkey, “Cubuk” [northwards Ankara]; Danilevsky & Miroshnikov, 1985: 126, part.; Özdipli, 2007: 192, part. - “Europe (Crimea), Caucasia, Transcaucasia, Near East, Turkey, Syria, Iran”; Bartenev, 2009: 33, part. - Crimea, Caucasia, Transcaucasia, Near East, Syria, Turkey, North Iran; Cebeci & Özdipli, 2010: 136, part. - “Europe (Crimea), Caucasia, Transcaucasia, Near East, Turkey, Syria, Persia”.

Rhamnusium graecum, Švácha, 1989: 36, part. (larvae).

Rhamnusium graecum graecum, Özdipli, 2007: 192, part. - Europe (Greece, European Turkey), Transcaucasia, Turkey, Iran; Löbl & Smetana, 2010: 135, part. - Transcaucasia, Greece, Turkey; Cebeci & Özdipli, 2010: 135, part. - Greece, European Turkey, Azerbaijan, Armenia, Syria, Turkey, Iran.

Rhamnusium bicolor bicolor; Cebeci & Özdipli, 2010: 133 - Turkey, Muğla prov.

Type locality. Turkey, Izmir prov., Boz-dagh - according to the original description.

Material examined. 2 ♂♂ (red-orange dorsally): “Port Baklar” [Turkey, north of Gallipoli Peninsula] - BMNH; 1 ♀ (red-orange dorsally): Erzurum, 10km NW Espir 27.vii.1992 Keith & Olivier leg. - MD.

Two photos (Figs 37-38) by M. Rejzek of ♂ and ♀ (MR) collected North of Hatay in the foothills of the Taurus Mts. are also available.

The taxon was described based on differently colored specimens: with black-blue elytra and with red-orange elytra. The presence of two color forms in Anatolia is now the only one distinct character, which separates *Rh. b. juglandis* from *Rh. b. testaceipenne*. A small number of available specimens (all are red-orange dorsally - Figs. 35-36) do not make it possible to understand the real morphological characters of the taxon. According to several forms described, it is clear that legs and abdomen are often more or less darkened. Turkish

Figs 35-38. *Rh. b. juglandis*: 35 - ♂, Turkey, Gallipoli; 36 - ♀: Turkey, Erzurum, 10 km NW Espir; 37-38 - ♂ and ♀: Turkey, North of Hatay in the foothills of Taurus Mts. (photos by M. Rezek)



35



36



37



38



specimens with blue elytra were also described as *Rhamnusium anatomicum* var. *obscuripes* Pic, 1903. Bicolored specimens from Muğla were illustrated (Cebeci & Özdi̇kmen, 2010).

Distribution. Turkey, about whole Anatolia; most probably penetrates to European Turkey.

Remark. Most probably several local subspecies will be described from Anatolia.

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